

CHAPTER 8

MACHINE SEWING ON CANVAS AND WEBBING

8-1. MACHINE SEWING

Machine sewing on canvas and webbing is preferred to hand sewing. The stitches made by a machine look better and wear longer than those made by hand. Machine sewing also takes less time. Repairs to canvas and webbing should be made by machine as often as possible.

8-2. SEWING MACHINES, NEEDLES, AND THREAD

The military uses single-needle, heavy-duty sewing machines (Figure 8-1) with compound feed and high-lift alternating pressure. The machines are designed for the repair of canvas and tents. Instructions for operating and maintaining the machines can be found in the manufacturers manuals or the appropriate technical manuals. The information on page 3-2 through 3-5 on needles, thread, stitch length, pressure, and tension also applies to the machines used to repair lightweight and heavy canvas. A size 22 needle is used for repairing lightweight canvas, and a size 24 needle is used for repairing heavy canvas. Type I or II, class I polyester thread is used for canvas repair. Left-twist thread is used in the needle, and right-twist thread is used in the bobbin. Thread sizes E and F are used to repair lightweight canvas, and thread size FF is used to repair heavy canvas. Repairs are sewn seven stitches to an inch on lightweight canvas and five stitches to an inch on heavy canvas.

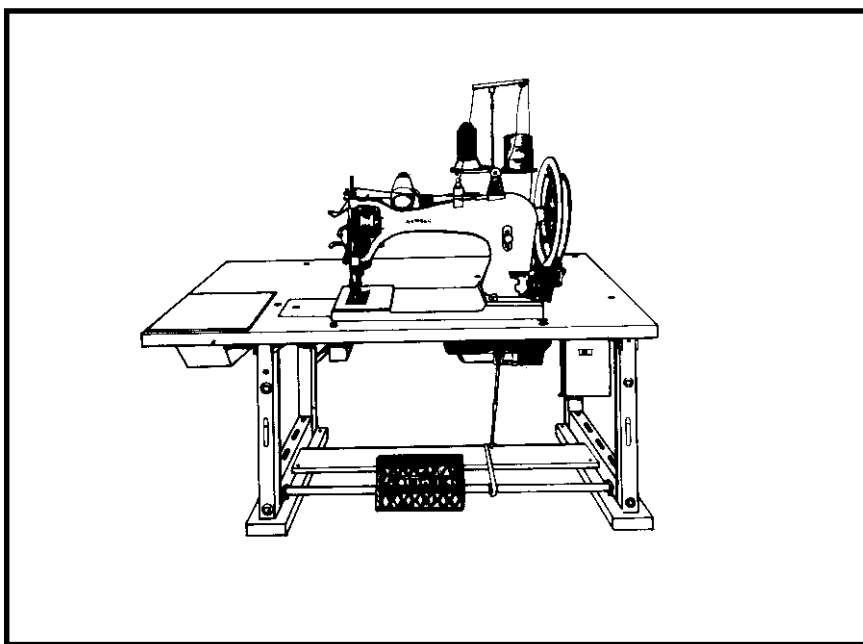


Figure 8-1. Heavy-duty sewing machine

8-3. SEAMS

There are five seams used by the military to repair canvas and webbing. Four seams are similar to those used to repair clothing. They are the plain seam, the hemming seam, the single-felled seam, and the double-felled seam. The other seam is the flat seam. They are used by fabric repair specialists in the repair of canvas and webbing only. The characteristics of a good seam were given on page 3-7. These high standards also apply to seams sewn on canvas and webbing.

a. Plain or Simple Seam. The plain seam (Figure 8-2) is used to join two pieces of canvas when a finished seam edge is not required. It is identical to the simple seam used on clothing, but it is sewn 1/4 inch from the edge. To make a plain seam--

- (1) Place piece A faceup on the sewing table.
- (2) Place piece B facedown on top of piece A.
- (3) Adjust the two layers so that the right edges are even.
- (4) Tack the beginning of the seam, and then sew a row of stitches 1/4 inch from and parallel to the right edge.
- (5) Tack the end of the seam.

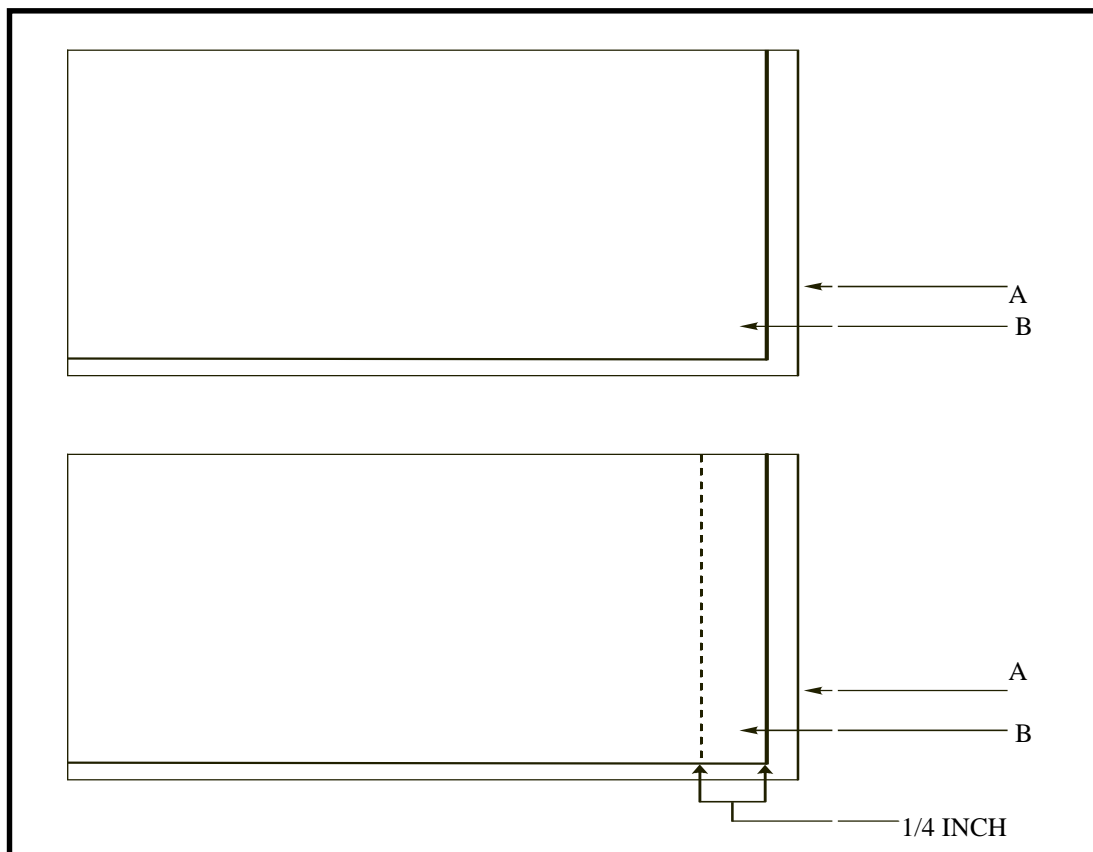


Figure 8-2. Plain seam on canvas

b. Hemming Seam. Seam type 1 is a hemming seam. It is similar to the hemming seam used on clothing. The three kinds of hems sewn on canvas are single-edge, grommeted, and four-sided.

(1) Single-Edge Hem. A single-edge hem (Figure 8-3) is used to finish one edge on a canvas item that does not have grommets. To sew a single-edge hem--

- (a) Place the piece of canvas facedown on a worktable.
- (b) With a ruler and chalk, mark a line 1 inch from the raw edge.
- (c) Fold the raw edge of the canvas up and over to the left until it meets the chalk line to form a 1/2-inch turn under.
- (d) Crease the folded edge in place with the handle of a pair of shears.
- (e) Mark a second chalk line 2 inches to the left of the folded edge.
- (f) Fold the cloth to the left again until the folded edge meets the second chalk line to form a 1-inch hem.
- (g) Crease the second folded edge in place with the handle of a pair of shears.
- (h) Tack the beginning of the seam, and then sew a row of stitches 1/8 inch to the right of the second folded edge.
- (i) Tack the end of the seam.

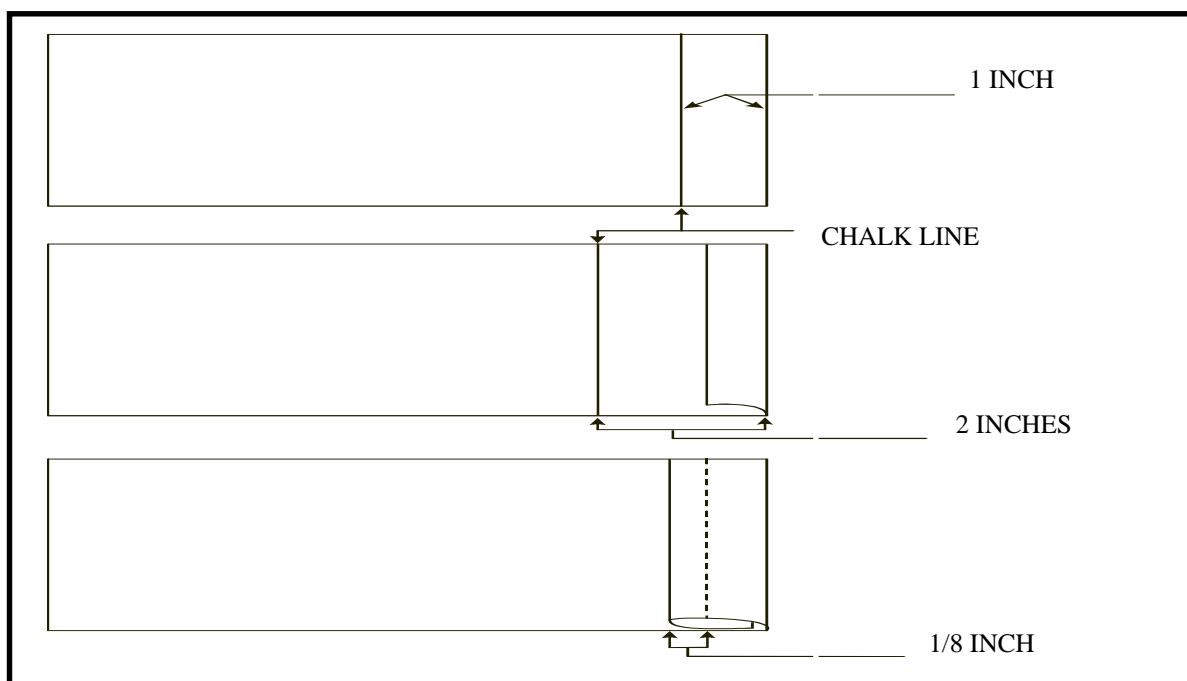


Figure 8-3. Single-edge hem

(2) Grommated Hem. A grommated hem (Figure 8-4) is used to finish an edge where grommets will be installed. Extra fabric is required to give the hem added strength. To sew a grommated hem--

- (a) Place the piece of canvas facedown on a worktable.
- (b) With a ruler and chalk, mark a line 4 inches from the raw edge.
- (c) Fold the raw edge of the canvas up and over to the left until it meets the chalk line to form a 2-inch turnunder.
- (d) Crease the folded edge in place with the handle of a pair of shears.
- (e) Mark a second chalk line 4 inches to the left of the folded edge.
- (f) Fold the cloth to the left again until the folded edge meets the second chalk line to form a 2-inch hem.
- (g) Crease the second folded edge in place with the handle of a pair of shears.
- (h) Tack the beginning of the seam, and then sew a row of stitches 1/8 inch to the right of the second folded edge.
- (i) Tack the end of the seam.

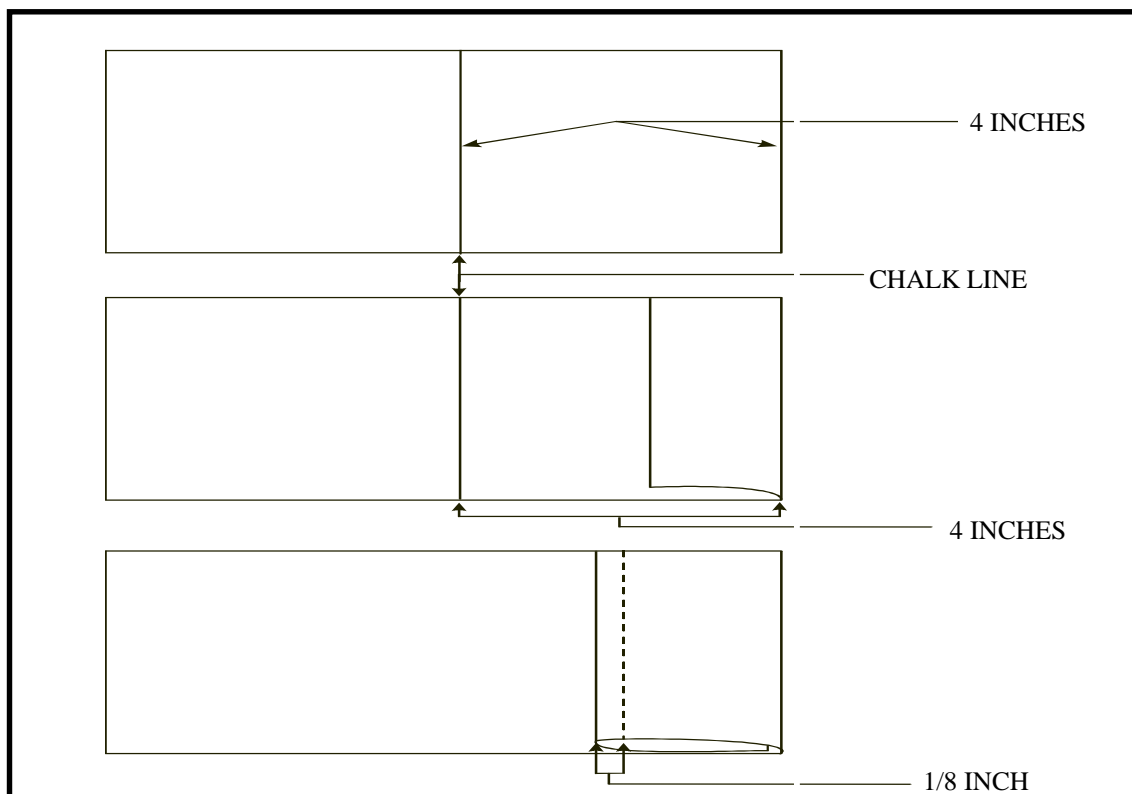


Figure 8-4. Seam type 1--Grommated hem

(3) **Four-Sided Hem.** A four-sided hem (Figure 8-5) is used to finish a rectangular piece of canvas completely on all sides. To make a four-sided hem--

(a) Square a 12- by 12-inch piece of material. Using the straight edge (ruler), make a 1/2-inch mark on all four sides of the material. After this is completed, use the ruler to connect these marks.

NOTE: The 1/2-inch marks will be your fold lines to be folded under.

(b) For the hem width using a ruler, mark 1-inch marks from the 1/2-inch fold line completely around the piece of material. Using a straight edge, align these marks and connect them around the material.

(c) After completing the above two steps, turn the material over and fold on the 1/2-inch mark (folding right side, bottom, left side, then top). Now take the 1-inch mark and do the same.

NOTE: Always fold material so that the stitch lines are visible to you. By doing this, you can tell if you are going off, or if the stitch line is crooked.

(d) With the folded edge up, place the material under the presser foot and insert the needle 1/8 inch from the inside hem edge. Sew toward the bottom until the needle catches the bottom hem fold 1/8 inch. Turn the material until you have the corner facing you and sew diagonally toward the corner until the needle reaches within 1/8 inch from the corner. Raise the presser foot while the needle is still intact in the material and turn the material so that the stitch line is toward you. Again, turn the material until the stitched hem is at the top. Sew straight down 1/8 inch away from the edge. Sew the remaining corners in the same manner until the needle reaches the starting point. Sew over the stitches previously made 1 inch for tacking.

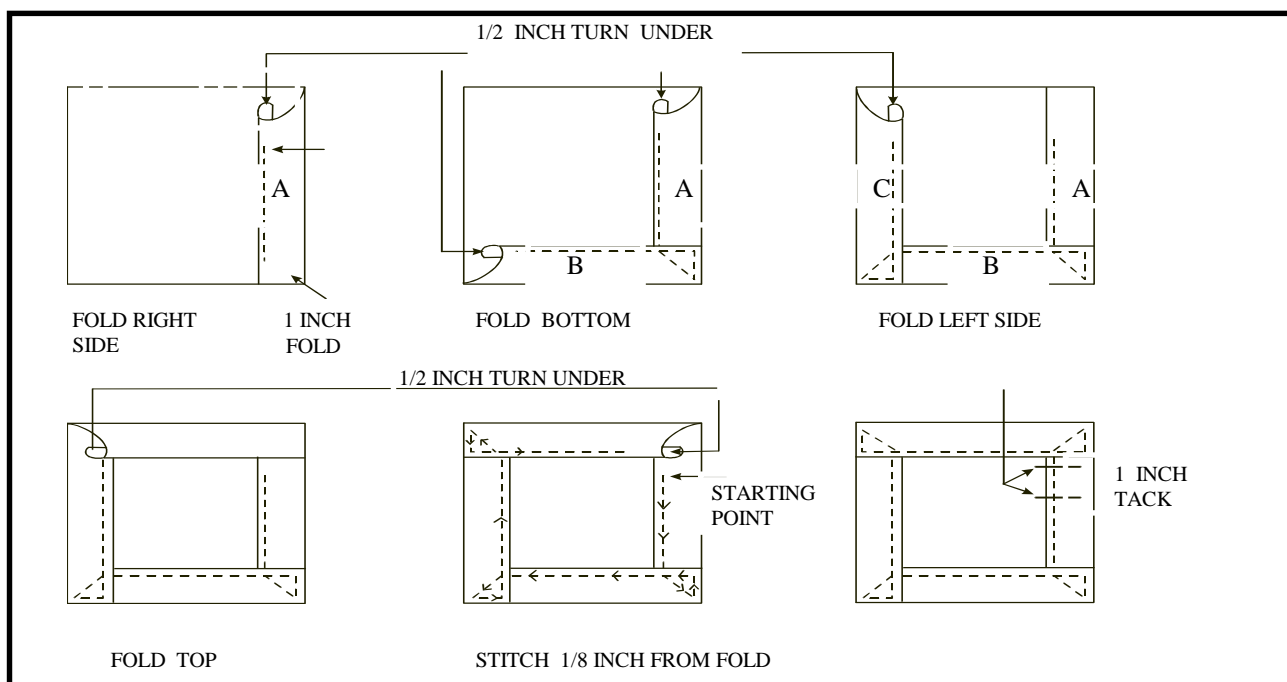


Figure 8-5. Four-sided hem

c. Flat Seam (Figure 8-6). A flat seam is used to join two pieces of canvas that have selvage edges. A selvage edge is a woven edge that will not unravel. A flat seam is used when a seam has to be finished on the outside and the inside, such as the seams of tents, tarpaulins, and truck covers. To make a flat seam--

- (1) Place piece A faceup on a worktable with the selvage edge to the left.
- (2) With a ruler and chalk, measure and mark a chalk line 1 inch from and parallel to the selvage edge.
- (3) Place piece B faceup on top of piece A so that the selvage edge of B is on the chalk line.
- (4) Tack the beginning of the seam, and sew the two pieces together with a row of stitches 1/8 inch to the left of the selvage edge of B. Tack the end of the seam.
- (5) Turn both pieces of canvas facedown.
- (6) Tack the beginning of the seam, and sew a second row of stitches 1/8 inch to the right of the selvage edge of A. Tack the end of the seam.

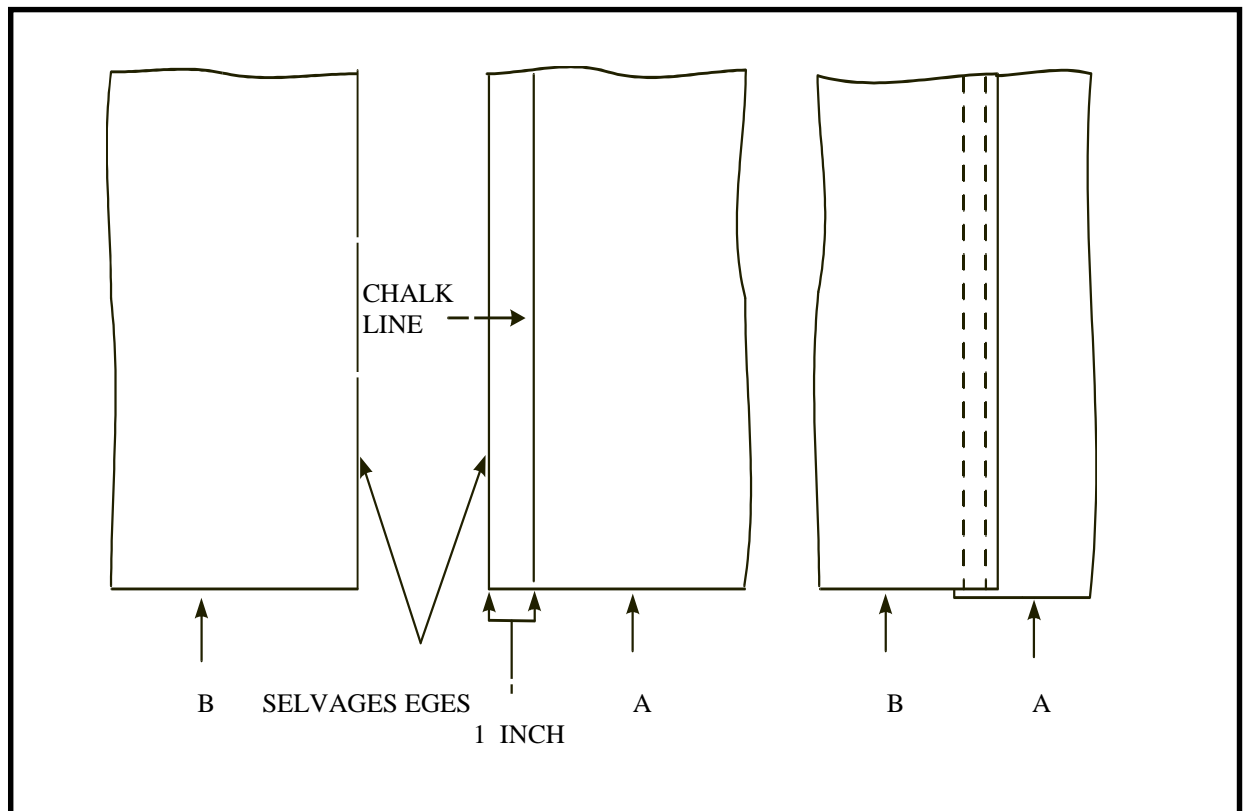


Figure 8-6. Flat seam

d. Single-Felled Seam. The single-felled seam (Figure 8-7) is similar to the welt seam used on clothing, but the single-felled seam is sewn with two rows of stitches. This seam is used to join two pieces of canvas when the outside has to be finished and the inside does not. It is also used to sew on patches. To make a single-felled seam--

(1) Sew piece A and piece B together with a simple seam but stitch the seam 1 inch from the right edge.

(2) Lift piece A up and over to the right so that both pieces are faceup and both seam allowances are to the right underneath.

(3) Tack the beginning of the seam, and sew a row of stitches 1/8 inch to the right of the fold through all three layers (piece A and seam allowances). Tack the end of the seam.

(4) Turn the pieces facedown.

(5) Tack the beginning of the seam, and sew a row of stitches 1/8 inch to the right of the raw edges through all three layers. Tack the end of the seam.

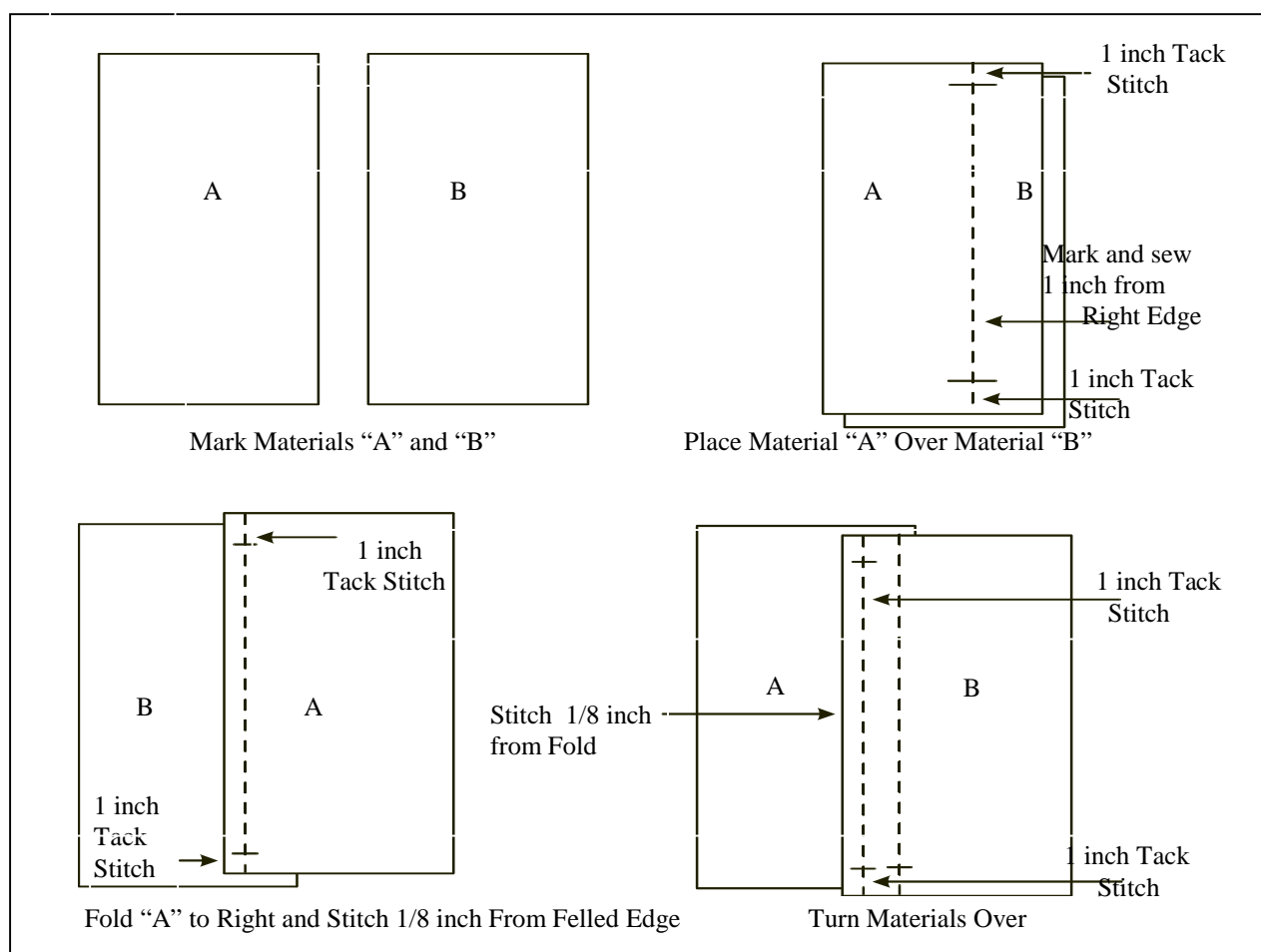


Figure 8-7. Single-felled seam

e. Double-Felled Seam. The double-felled seam (Figure 8-8) is similar in appearance to the double-lapped seam used on clothing. This seam is used to join two pieces of canvas when the outside and the inside of the seam have to be finished with no exposed raw edges. To make a double-felled seam--

- (1) Place piece A faceup on a worktable.
- (2) With a ruler and chalk, mark a chalk line 1 inch from and parallel to the left edge.
- (3) Place piece B facedown on a worktable.
- (4) With a ruler and chalk, mark a chalk line 1 inch from and parallel to the left edge.
- (5) Place piece B facedown on piece A. Align the left edge of piece B with the chalk line of piece A.
- (6) Tack the beginning of the seam, and sew the two pieces of canvas together by stitching a seam on the chalk line of piece B. Tack the end of the seam.
- (7) Fold the left edge of piece A up and over to the left on the stitch row of B.
- (8) Fold the right side of piece B up and over to the left on the seam line so that both pieces are faceup.
- (9) Tack the beginning of the seam, and sew a row of stitches 1/8 inch to the left of the folded edge. Tack the end of the seam.
- (10) Turn both pieces of canvas over so that they are facedown.
- (11) Tack the beginning of the seam, and sew another row of stitches 1/8 inch to the left of the folded edge. Tack the end of the seam.

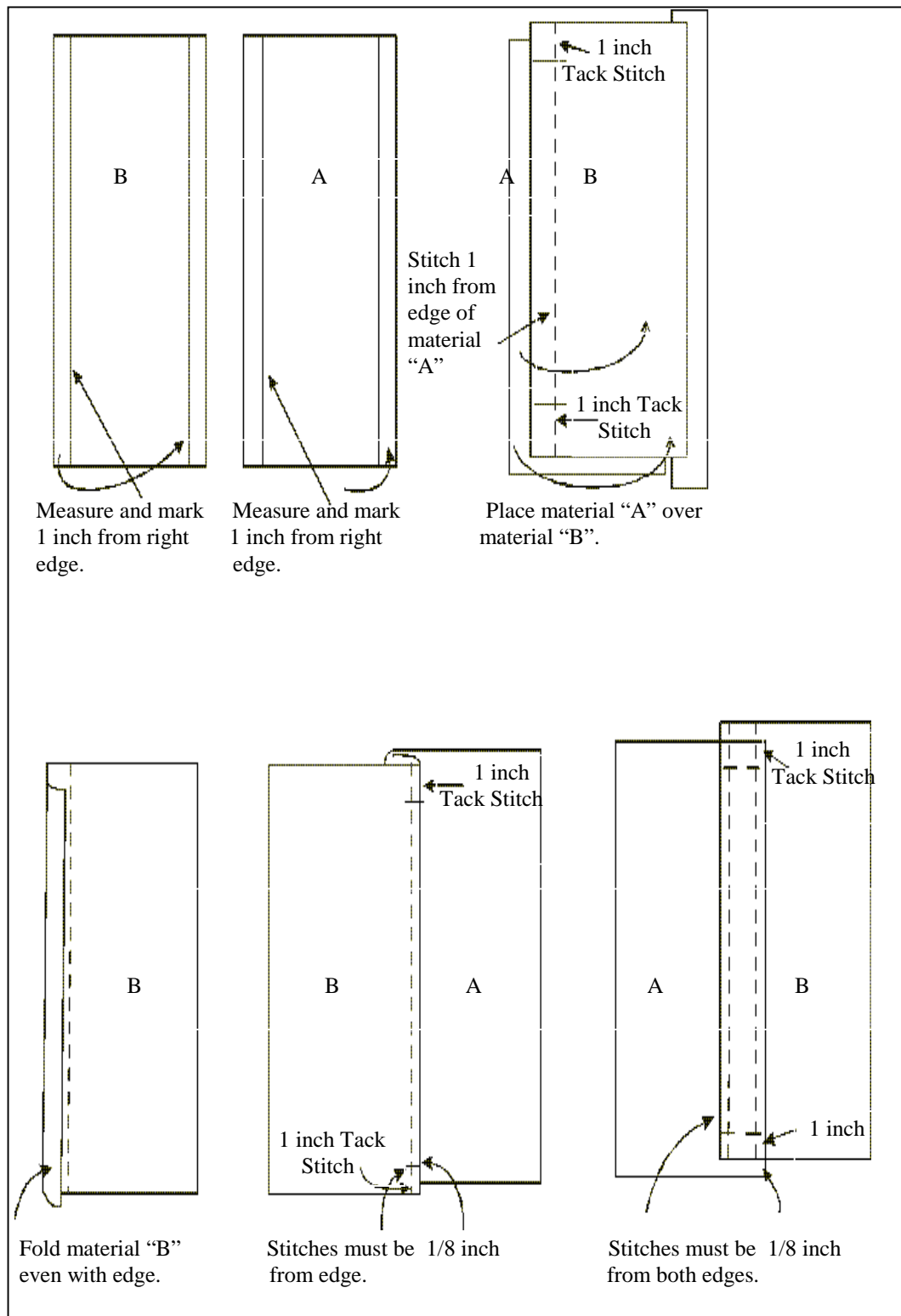


Figure 8-8. Double-felled seam